

We claim:

1. In a communication network having at least a first calling station connected to a first telephonic network and a service-user calling station connected to a packet-based network, an improvement of an assembly for facilitating call connection between the first calling station and the service-user calling station, the service-user calling station having at least a first virtual calling-station identity in the first telephonic network such that the service-user calling station appears virtually resident in the first telephonic network, said assembly comprising:

10 a virtual-location indexer embodied at the packet-based network, said indexer for indexing together the at least the first virtual calling-station identity of the service-user calling station with a selected packet-based-network identity of the service-user calling station, the packet-based-network identity associated with logical connection of the service-user calling station to the packet data network and the virtual calling-station identity associated with a virtual residency location of the service-user calling station in the first telephonic network, and said indexer accessed pursuant to call routing of a call 15 between the first calling station and the service-user calling station to permit effectuation of the call connection therebetween.

2. The assembly of claim 1 wherein the service-user calling station is logically connectable to the packet data network at any of a first logical location and at least a second logical location and wherein the selected packet-based-network identity 20 of the service-user calling station is associated with a selected one of the first logical location and the second logical location at which the service-user calling station is connected to the packet data network.

3. The assembly of claim 2 wherein the service-user calling station is moveable, separately connectable at the first logical location and at the at least the second logical location, and wherein the selected packet-based network identity indexed together by said virtual location indexer is updateable responsive to movement and
5 connection of the service-user calling station separately at the first logical location and at the at least the second logical location.

4. The assembly of claim 1 wherein the packet data network comprises a proxy server and wherein said virtual location indexer is embodied at the proxy server.

5. The assembly of claim 1 wherein the packet-based-network identity of the
10 service-user calling station indexed by said virtual location indexer comprises an IP-address.

6. The assembly of claim 5 wherein the service-user calling station operates pursuant to an SIP (session initiation protocol) and wherein the packet-based-network identity of the service-user calling station indexed by said virtual location indexer
15 comprises a SIP IP-address.

7. The assembly of claim 1 wherein the packet-based-network further comprises a gateway that couples the first telephonic network together with the packet-based network wherein a call to the service-user calling station by the first calling station is routed to the gateway and wherein said gateway accesses said virtual location
20 indexer to obtain the selected packet-based network identity of the service-user calling station to route the call thereto.

8. The assembly of claim 7 wherein the first telephonic network comprises a service control point, wherein the gateway is identified by a gateway address, wherein the call to the service-user calling station by the first calling station is caused to be
25 routed by the service control point to the gateway.

9. The assembly of claim 8 wherein the call to the service-user calling station is initiated by the first calling station through entry thereat of the first virtual calling-station identity and wherein the assembly further comprises a database embodied at the service control point, the database comprising a map that maps the first 5 virtual calling-station identity together with the gateway address.

10. The assembly of claim 9 wherein the at least the first virtual calling-station identity of the service-user calling station comprises the first virtual calling-station identity and at least a second virtual calling-station identity and wherein the map formed of said database maps all of the first and at least second calling-station identities 10 of the service-user calling station together with the gateway address.

11. The assembly of claim 1 wherein the first telephonic network comprises a TDM (time division multiplexed) network having a TDM switch and wherein a call placed by the first calling station to the service-user calling station is routed by the TDM switch to the packet data network and wherein, once delivered to the packet data 15 network, the selected packet-based-network identity indexed together at said virtual location indexer is determined, and the call is routed thereto.

12. In a method of communicating in a communication network having at least a first calling station connected to a first telephonic network and a service-user calling station connected to a packet-based network, an improvement of a method for 20 facilitating call connection between the first calling station and the service-user calling station, the service-user calling station having at least a first virtual calling-station identity in the first telephonic network such that the service-user calling station appears virtually resident in the first telephonic network, said method comprising:

indexing together the at least the first virtual calling-station identity of the 25 service-user calling station to form an index thereby, the packet-based-network identity associated with logical connection of the service-user calling station to the packet data

network and the virtual calling-station identity associated with a virtual residency location of the service-user calling station in the first telephonic network; and
accessing the indexed formed during said operation of indexing pursuant to call routing of a call between the first calling station and the service user calling station to
5 permit the effectuation of the call connection therebetween.

13. The method of claim 12 further comprising the operation of initiating a call by the first communication station to the service-user calling station through entry of indicia of a selected one of the at least the first calling-station identity.

14. The method of claim 13 wherein the communication network comprises a
10 gateway coupling the first telephonic network with the packet data network, wherein the call initiated during said operation of initiating is routed to the gateway and wherein
said operation of accessing is performed by the gateway.

15. The method of claim 14 comprising the further operation, subsequent to
said operation of accessing, of routing the call to an address identified in the index
15 accessed during said operation of accessing to be associated with the at least the first
virtual calling-station identity.

16. The method of claim 12 wherein the service-user calling station is
logically connectable to the packet data network at any of a first logical location and at
least a second logical location and wherein said method further comprises the operation
20 of updating the index formed during said operation of indexing when the service-user
calling station is reconnected out of one of the first and at least second logical locations
and connected into another one of the first and at least second logical locations.

17. The method of claim 16 wherein the packet data network comprises a
proxy server and wherein the index formed during said operation of indexing is
25 embodied at the proxy server.

18. The method of claim 12 wherein the at least the first virtual calling station
identity comprises the first calling station identity and at least a second virtual calling
station identity and wherein the index formed during said operation of indexing indexes

all of the first and at least second virtual calling stations together with the selected packet-based network identity.

19. The method of claim 17 wherein the first telephonic network further comprises a service control point and wherein said method further comprises the 5 operation of creating a database at the service control point, wherein the gateway is identified by a gateway address and wherein said method further comprises the operation of creating a database having a map that maps the first virtual calling-station identity together with the gateway address.

20. The method of claim 19 further comprising the operation of accessing the 10 database to route the call to the gateway.